

REMARKS

Claims 1, 2 and 4-17 are pending. The following remarks supplement the remarks of the Amendment filed January 21, 2009.

Applicants' Response to the Claim Rejections under 35 U.S.C. §103

Claims 1-8 and 10-16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Shibahara (US 7,132,154) in view of Border (US 2002/0123550 A1).

In supplement to the amendment of January 21, 2009, applicants do hereby respectfully submit that there is no reason whereby a skilled artisan could derive the present invention based on the combination of Shibahara and Border. Specifically, Shibahara does not disclose the feature of an additional organic particle structure as required by applicant's claim 1; and further, the disclosures of requirements for the device of Border and those of Shibara clearly result is a teaching to one of skill in the art that a combination of the references would be contrary to their intended operation and would likely destroy their intended function. As such, there is no reason based on the combination, whereby a skilled artisan would derive the inclusion of inorganic particles in a range of 25 to 60wt%.

First, in regard to Shibahara disclosing a second inorganic particle, the rejection states:

"Shibahara teaches a resin sheet (plastic sheet substrate, column 10, line 12-13), characterized in that it comprises a cured epoxy resin layer containing in an epoxy resin ((a), column 7, lines 55-60) a glass fiber cloth-like material (glass filler (b), glass cloth most preferred, column 9, lines 1-8) and inorganic particles, (composite composition may further contain another inorganic filler, column 9, lines 43-47, which are particles added to a matrix to improve its properties). Shibahara teaches that the refractive index difference between the epoxy resin that forms the cured resin layer and the glass filler cloth-like material is more preferably not more than 0.005(column 3, lines 20-25), which is within the

claimed range of 0.01 or less. Shibahara teaches that the light transmittance of the resin sheet is 88% or more when measured at 55nm (column 13-14, lines 50-60), which is within the claimed range of 88% or more.

Shibahara teaches that the resin sheet has excellent transparency (column 2, lines 10-15) wherein the inorganic filler particles do not impair transparency (column 9, lines 45-47), but fails to disclose the dimensions of the inorganic particles, and thus fails to teach a mean particle diameter within the range of 100 nm or smaller, or 70 nm or smaller."

Shibahara states in column 9 lines 43-47:

"The composite composition of the invention may further contain, according to need, an antioxidant, an ultraviolet absorber, a dye or pigment, a loading material such as another inorganic filler, and/or a further additive, each in a small amount so that such characteristics as transparency, solvent resistance and heat resistance may not be impaired."

However, this disclosure of possible further materials in Shibahara is separate and distinct from the disclosure of "inorganic particles" used to form the composition. Specifically, Shibahara mentions in column 9 lines 1-8:

"The glass filler (b) to be used in the practice of the invention includes glass fibers, glass cloths, nonwoven glass fabrics and other glass fiber cloths, glass beads, glass flakes, glass powders, milled glass species and so forth. Among them, glass fibers, glass cloths and nonwoven glass fabrics are preferred in view of their being highly effective in reducing the coefficient of linear expansion. Glass cloths are most preferred"

This disclosure does not advocate selecting two kinds of the glass filler from among the cited glass filler and combining them together.

Conversely, according to the rejection as further set forth in the December 30, 2008 Advisory Action on page 4 the lowermost paragraph to page 5:

"Shibahara teaches that glass particles can also be a part of the glass filler(glass beads, glass flakes, glass powders, column 9, lines 1-8) and that the resin layer can further comprise another inorganic filler(column 9, lines 43-49). Thus the glass filler (b) of Shibahara can comprise inorganic glass particles such as silica in addition to the glass fiber cloth-like material that is the most preferred."

As can be determined from the separation of the relied upon disclosures within Shibahara, the above statement is a forceful evaluation that "glass beads, glass flakes, glass powders" (column 9 lines 1-8) and "another inorganic filler" (column 9 lines 43-49) are similar to each other. However, the skilled artisan would readily distinguish that the "glass beads, glass flakes, glass powders" are provided as examples of glass filler (b), which are distinct from "another inorganic filler" clearly mentioned as "the resin layer can further comprise another inorganic filler" at column 9, lines 43-49."

As set forth in *Takeda v. Alphapharm* 492 F.3d 1350, 1356-1357; 83 USPQ2d 1169 (Fed. Cir. 2007):

While the *KSR* Court rejected a rigid application of the teaching, suggestion, or motivation ("TSM") test in an obviousness inquiry, the Court acknowledged the importance of identifying "a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does" in an obviousness determination. *KSR*, 127 S. Ct. at 1731.

Based on the above, the disclosures of Shibahara clearly do not provide a reason for a skilled artisan to utilize inorganic particles in a range of 25 to 60% as set forth in applicants' parent claim 1. Moreover, the disclosures of the secondary reference Border likewise teach away from such an addition.

Border mentions in paragraph 0006:

"Nanoparticulate fillers have been used to modify the index of refraction of optical plastics. By using a filler small enough that it is well below the wavelength of visible light (400-700 nm), the filler will not scatter the light and the filled plastic can retain its transparency. WIPO Patent W097/10527 describes the use of nanoparticles to increase the refractive index of plastics for ophthalmic applications. In addition, technical references that describe the addition of nanoparticles to increase the refractive index of plastics to include; C. Becker, P. Mueller, H. Schmidt; "Optical and Thermomechanical Investigations on Thermoplastic Nanocomposites with Surface-Modified Silica Nanoparticles," SPIE Proceedings Vol. 3469, pp. 88-98, July 1998; and, B. Braune, P. Mueller, H. Schmidt, "Tantalum Oxide Nanomers for Optical Applications," SPIE Proceedings Vol. 3469, pp. 124-132, July 1998. While these references disclose the use of nanoparticles to modify refractive index of optical plastics they do not discuss the issue of refractive index stability with respect to temperature which requires a different set of characteristics in the nanoparticle."

(Emphasis added).

In the above paragraph, Border teaches that it is effective to add "nanoparticulate fillers" for increasing the refractive index of plastics for ophthalmic applications, and the transparency of plastic is not adversely influenced when the particulate diameter of the filler to be added is sufficiently decreased. Accordingly, unless the person skilled in the art has a demand or object to "increase the refractive index" the skilled artisan would not be motivated to add "nanoparticulate fillers". In other words, if there is no object of "increasing the refractive index", there is no reason to add "nanoparticulate fillers" which is the only reason disclosed in Border. Under U.S. patent law, the teachings of a reference must be considered as a whole. As such, the consideration which the skilled artisan would give to the above teaching of Border must be included in the evaluation of obviousness.

In regard to a reason to combine the teachings to derive the claimed invention, the current rejection cites to only Shibahara's object of the invention, which is to provide "composite composition", which is "excellent in transparency, heat resistance and solvent resistance". There is no consideration of a result of "increasing the refractive index" of plastic as Border teaches the nanoparticles do.

Further, another disclosure of Shibahara must be taken into consideration. Namely, Shibahara discloses at column 3, lines 21-27 that the invention thereof necessitates setting the difference between the refractive index of epoxy resin itself and the refractive index of glass filler to 0.01 or smaller. Thus, as would be clear to the skilled artisan based on the teachings of Border, changing the refractive index by adding "nanoparticulate fillers" causes an adverse effect of destabilizing the equilibrium required for the object of the invention of Shibahara. This is particularly true of adding "inorganic filler" which is required by Shibahara to be only a "small amount" so as not to impair the required characteristics at an amount as great as 25 wt%. In short, the skilled artisan would readily derive that such an amount is contrary to Shibahara and would likely destroy its intended operation of the refractive index of epoxy resin itself and the refractive index of glass filler being 0.01 or smaller.

Wherefore, based on the combined disclosures of Shibahara and Border, when evaluated together as a whole, the skilled artisan would have no reason whereby they could derive the addition of an inorganic particle at 25-60 wt%. In light thereof, applicants respectfully submit that parent claim 1 and its respective dependent claims are not obvious.

Application No.: 10/580,714
Art Unit: 1794

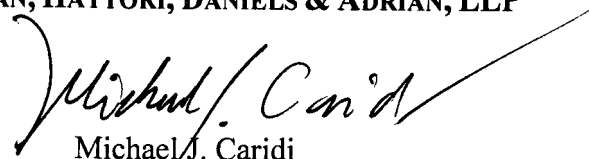
Supplemental Response
Attorney Docket No.: 062568

In view of the prior submitted amendments and accompanying remarks, Applicants submit that the claims, as previously amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
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